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EXAMINER	
CLIFTON, JESSICA L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,131	ZHANG ET AL.	
	Examiner	Art Unit	
	JESSICA CLIFTON	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1--7,10-14,17, 20,29 and 30* is/are rejected.

7)☒ Claim(s) *8,9,15,16,18,19 and 21-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/15/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-30 have been examined and are pending.

Claim Objections

2. Claim 1 is objected to because of the following informalities: the term **"lost packet"** should be changed to **"packet loss"**.

3. Claims 12 and 29 are objected to because of the following informalities: use of the acronym **EDF** should be spelled out to **Earliest Deadline First**. Appropriate correction is required.

4. Claim 29 is objected to because of the following informalities: the phrase **"a method of EDF algorithm"** should be changed to **"a method utilizing Earliest Deadline First (EDF) algorithm"** .

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The limitation **"the real time lost ratio of packet"** in the second indented limitation. There is insufficient antecedent basis for this limitation in the claim.

Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The phrase **"according to a principal of least"** renders the claim indefinite because it is unclear how priority scheduling is in accordance to a principal.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The method claimed is referring to the separate method of claim 1. It is unclear exactly what method is being claimed as the invention. If any limitations of claim 1 are to be included, then the claim language of claim 1 should be included into claim 10.
- The limitation of **"dividing the packet data into a packet with**: ...**time delay jitter and time delay limitation**, ...**only with time delay limitation**, ...**and without time delay limitation"** is ambiguous because it literally would be interpreted as a data stream containing only three packets.

Examiner will interpret this to be: dividing packets among queues on the basis of packet requirement which include packets having both jitter and time delay limitations, only time delay limitations, and without time delay limitations.

- The limitation of data packets having "**priority levels from high to low**" is indefinite because there is no indication as to how, and to which packets, priority levels are assigned. The limitation "**re-reading new data**" is indefinite because if data is new, it would have never originally been read.
- The limitation **"new data"** in the fifth indented limitation. There is insufficient antecedent basis for this limitation in the claim.
- The limitation **"the packet service"** in the sixth indented limitation. There is insufficient antecedent basis for this limitation in the claim.
- The limitation **"a code channel assigned in a scheduling period of transmission time"** in the third indented limitation. There is insufficient antecedent basis for this limitation in the claim. In the body of the claim there is no indication of when or how a "code channel" was assigned.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The limitations " **a lowest priority level**", " **a highest priority level**" , and "**a moderate priority level"** is indefinite because there is no indication as to how, and to which packets, these priority levels are assigned.

Allowable Subject Matter

6. Claims 3, 4, 8, 9, 15, 16, 18, 19, 21- 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aznar et al. (US Pub. No. 2001/0007561) and further in view of Kumazawa et al. (US Pub. No. 2002/0114340).

As per claim 1, **a method for scheduling packet in a wireless telecommunication system, comprising dividing user packet queues to be transmitted into user packet queues with lost packet and user packet queues without lost packet** (Congestion is a measure of lost packets. Paragraph [0020], discloses classifying packets in accordance with congestion level).

for the user packet queues with lost packet, if the real time lost ratio of packet for the user excesses a predetermined lost ratio threshold of packet, terminating the connection to the user (Paragraph [0020], discloses that packets exceeding the congestion level will be discarded)**;**

for the user packet queues without lost packet, scheduling according to packet lengths, channel quality states, time delays and time delay jitters (Scheduling with respect to packet length, channel quality state, time delay and time delay jitter is well known in the art to be quality of service parameters. Paragraph [0022], discloses scheduling traffic in accordance with different qualities of service)**.**

if the real time lost ratio of packet for the user does not excess the predetermined lost ratio threshold of packet, scheduling the user packet queues (Paragraph [0020], discloses forwarding packets for scheduling only if they do not exceed the congestion level. Paragraph [0022], discloses scheduling traffic in accordance with different qualities of service).

Aznar is silent on scheduling **according to the volume of the lost ratio of packet** which is well known in the art and commonly applied in the communications field for packet scheduling.

However, Kumazawa, in an analogous art, discloses scheduling **according to the volume of the lost ratio of packet** (Paragraph [0018], discloses priority given to queues which contain less congestion)**.**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar to include scheduling **according to the volume of the lost ratio of packet** as taught in Kumazawa for the purpose of scheduling queues in accordance with service guarantees.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa as applied to claim 1, and further in view of Abu-Amara et al. (US Patent 5,883,819).

As per claim 2, Aznar-Kumazawa teaches **the method of scheduling packet in a wireless telecommunication of claim 1.** Aznar further discloses **wherein said step of dividing user packet queues to be transmitted into the user packet queues with lost packet and the user packet queues without lost packet further includes the steps of:**

obtaining related information, required for scheduling, including the channel quality states (Congestion is a measure of channel quality. Paragraph [0020], discloses classifying packets in accordance with congestion level **), the lengths of all packets to be transmitted** (Paragraph [0039], discloses determining if a packet exceeds a packet threshold**), maximum delay thresholds for all packets, delay waiting time for all packets** (The maximum delay threshold is the time at which a packet has become inactive. Paragraph [0043], discloses scanning queues for aging packets which have become inactive), **the real time lost ratios of packets for all**

users, real time lost ratio thresholds of packets for all users (Paragraph [0020], discloses scheduling packets according to congestion levels which do not exceed a congestion threshold),

judging whether the real time lost ratio of packet for each of users is more than 0, if yes, categorizing the user packet into the user packet queues with lost packet; if not, categorizing the user packet into the user packet queues without lost packet (The determination of congestion level would require a calculation of whether there is congestion and this calculation would include a result of "0". Paragraph [0020], discloses classifying packets in accordance with congestion level and forwarding packets for scheduling).

Aznar-Kumazawa is silent on **time delay jitters for all packets and maximum time delay jitter thresholds for all packets** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, Abu-Amara, in an analogous art, discloses **time delay jitters for all packets and maximum time delay jitter thresholds for all packets** (Col. 1, lines 50-65, discloses measuring maximum jitter for packets. Col. 2, lines 47-52, discloses a threshold calculation applied to jitter).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa to include scheduling **time delay jitters for all packets and maximum time delay jitter**

thresholds for all packets as taught in Abu-Amara for the purpose of assessing quality of service.

10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa, as applied to claim 1 above, and further in view of Jiang (US Pub. No. 2002/0044527).

As per claim 5, the combination of Aznar-Kumazawa teaches **the method of scheduling packet in wireless telecommunication of claim 1.**

Aznar-Kumazawa is silent on **wherein said channel quality state is a reciprocal of a maximum possible transmission rate in a wireless channel** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, the method of scheduling defining channel quality state as a function of transmission rate is a matter of design choice and would be obvious to one of ordinary skill in the art because it is well known that the reciprocal of a maximum transmission rate is a measure of channel quality as defined by Jiang, Paragraph [0010], discloses channel efficiency defined as amount of data deliver divided by the maximum amount of data that can be delivered.

As per claim 6, the combination of Aznar-Kumazawa teaches **the method of scheduling packet in wireless telecommunication of claim 1.**

Aznar-Kumazawa is silent on **wherein said channel quality state is a reciprocal of a measured ratio of signal to noise in a channel** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, the method of scheduling defining channel quality state as a function of signal to noise ratio is a matter of design choice and would be obvious to one of ordinary skill in the art because it is well known that signal to noise ratio is a measure of channel quality as defined by Jiang, Paragraph [0035], discloses channel efficiency defined as a measure of signal to noise. Using the reciprocal of the signal to noise ratio is a functional equivalent to using the signal to noise ratio.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa, as applied to claim 1 above, and further in view of Wiebke et al. (US Pub. No. 2001/0008542).

As per claim 7, Aznar-Kumazawa teaches **the method of scheduling packet in wireless telecommunication of claim 1.**

Aznar-Kumazawa is silent on **wherein said channel quality state is path loss of transmission** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, the method of scheduling defining channel quality state as a function of path loss is a matter of design choice and would be obvious to one of ordinary skill in

the art because it is well known that path loss is a measure of channel quality as defined by Wiebke, Paragraph [0047], discloses link quality defined as a measure of path loss.

12. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa-Abu-Amara, as applied to claim 2 above, and further in view of Jiang (US Pub. No. 2002/0044527).

As per claim 14, the combination of Aznar-Kumazawa-Abu-Amara teaches **the method of scheduling packet in wireless telecommunication of claim 2.**

Aznar-Kumazawa- Abu-Amara is silent on **wherein said channel quality state is a reciprocal of a maximum possible transmission rate in a wireless channel** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, the method of scheduling defining channel quality state as a function of transmission rate is a matter of design choice and would be obvious to one of ordinary skill in the art because it is well known that the reciprocal of a maximum transmission rate is a measure of channel quality as defined by Jiang, Paragraph [0010], discloses channel efficiency defined as amount of data deliver divided by the maximum amount of data that can be delivered.

As per claim 17, the combination of Aznar-Kumazawa- Abu-Amara teaches **the method of scheduling packet in wireless telecommunication of claim 2.**

Aznar-Kumazawa- Abu-Amara is silent on **wherein said channel quality state is a reciprocal of a measured ratio of signal to noise in a channel** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, the method of scheduling defining channel quality state as a function of signal to noise ratio is a matter of design choice and would be obvious to one of ordinary skill in the art because it is well known that signal to noise ratio is a measure of channel quality as defined by Jiang, Paragraph [0035], discloses channel efficiency defined as a measure of signal to noise. Using the reciprocal of the signal to noise ratio is a functional equivalent to using the signal to noise ratio.

13. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa- Abu-Amara, as applied to claim 2 above, and further in view of Wiebke et al. (US Pub. No. 2001/0008542).

As per claim 20, the combination of Aznar-Kumazawa- Abu-Amara teaches **the method of scheduling packet in wireless telecommunication of claim 2.**

Aznar-Kumazawa-Abu-Amara is silent on **wherein said channel quality state is path loss of transmission** which is well known in the art and commonly applied in the communications field for assessing quality of service.

However, the method of scheduling defining channel quality state as a function of path loss is a matter of design choice and would be obvious to one of ordinary skill in the art because it is well known that path loss is a measure of channel quality as defined by Wiebke, Paragraph [0047], discloses link quality defined as a measure of path loss.

14. Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Aznar-Kumazawa as applied to claim 1 above, in view of Roberts (US Pub. No. 2002/0057699) and further in view of Seo et al. (US Pub. No. 2003/0039217).

As per claim 10, Aznar discloses **a method of scheduling packet in wireless telecommunication system, comprising:**
reading packet data to be transmitted into buffers of a queue (Figure 3, illustrates receiving packet data into multiple buffers for scheduling)**, and dividing the packet data into a packet with time delay jitter and time delay limitation, a packet only with time delay limitation, and a packet without time delay limitation** (Time delay and time delay jitter are well known in the art as service parameters for assigning class of service. Paragraph [0020], discloses classifying traffic based on class of service parameters). Aznar further discloses **with priority levels from high to low** (Paragraph [0032], discloses setting priority highest to lowest of the classes of service)**.** Additionally, Aznar teaches **for the packet with time delay jitter and time delay**

limitation, scheduling the packet data according to the priority levels (Paragraph [0032], discloses setting priority highest to lowest of the classes of service) **by using a method for scheduling packet of claim 1** (see claim 1).

Aznar-Kumazawa is silent on **time delay jitter and time delay limitations** with respect to assigning class of service which is well known in the art and commonly applied in the communications field for classifying service.

However, Roberts, in an analogous art, teaches **time delay jitter and time delay limitations** with respect to assigning class of service (Paragraph [0046], discloses traffic flow characterized into types of service to based on time delay and time delay jitter requirements).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa to include **time delay jitter and time delay limitations** as taught in Roberts for the purpose of classifying service.

Aznar-Kumazawa-Roberts is silent on **judging whether a code channel assigned in a scheduling period of a transmission time interval or an overall power used excesses a predetermined upper limit** which is well known in the art and commonly applied in the communications field for allocating transmission power.

However, Seo, in an analogous art, teaches **judging whether a code channel assigned in a scheduling period of a transmission time interval or an overall**

power used excesses a predetermined upper limit, (Seo, Paragraph [0083], discloses allocating transmission power among channels which are limited to a maximum power level for one channelization code).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts to include **judging whether a code channel assigned in a scheduling period of a transmission time interval or an overall power used excesses a predetermined upper limit** as taught in Roberts for the purpose of allocating transmission power.

The combination of Aznar-Kumazawa-Roberts as modified above teaches judgment steps in accordance with exceeding a limit. (Kumazawa, Paragraphs [0077-78], discloses judging whether queue length reaches a first threshold and proceeds to transmit packets) Absent of any criticality, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts to include **if yes, completing the scheduling period of one transmission time interval for the packet, if not, re-reading new data and continuing scheduling the packet service in the scheduling period of the transmission time interval; re-reading new data to start scheduling the packet service in a scheduling period of the following transmission time interval** for the purpose of scheduling packets in accordance with a limiting threshold.

As per claim 13, Aznar-Kumazawa-Roberts-Seo teaches **the method of scheduling packet in wireless telecommunication system of claim 10.** Roberts

further teaches **wherein the packet without time delay limitation is scheduled by a wireless weight fair queue scheduling method** which is well known and widely used in the communications field for adjusting the transmission rate. (Paragraph [0047], discloses that available rate (AR) traffic does not have real-time requirements. Paragraph [0052], discloses that AR traffic include a weighted factor. Paragraph [0054], discloses the use of the weighted fair queuing technique).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts-Seo to include the limitation **wherein the packet without time delay limitation is scheduled by a wireless weight fair queue scheduling method** as taught in Roberts for the purpose of adjusting the transmission rate to ensure quality of service.

15. Claims 11, 12, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Aznar-Kumazawa-Roberts-Seo as applied to claim 10 above and further in view of Liu et al. (US Pub. No. 2005/0047425).

As per claim 11, Aznar-Kumazawa-Roberts-Seo discloses **the method of scheduling packet in wireless telecommunication system of claim 10, wherein said step of dividing the packet data further includes steps of:**

Roberts, as modified and motivated in claim 10, further teaches **judging whether there is a packet service sensitive to time delay in the packet data in the queue** (Paragraph [0047], discloses classifying traffic based on delay requirements),

The combination of Aznar-Kumazawa-Roberts-Seo is silent on the remaining limitations of claim 11, which is well known in the art and commonly applied in the communications field for classifying packets.

However, Liu, in an analogous art, teaches **if no, it indicating that the packet service in the queue is a packet service without time delay limitation** (Paragraph [0040], discloses classifying traffic which includes best effort traffic without bandwidth requirements), **a lowest priority level** (Paragraph [0044], discloses best effort traffic as having the lowest priority)**;**

if yes, further judging whether there is a packet service sensitive to time delay jitter in the packet service sensitive to time delay, if yes, the packet service sensitive to time delay jitter being a packet with time delay jitter and time delay limitation (Paragraph [0040], discloses classifying traffic on the basis of jitter and delay requirements), **a highest priority level** (Paragraph [0041], discloses real-time traffic as having high priority)**;**

if no, the packet service sensitive to time delay jitter being the packet only with time delay limitation; a moderate priority level (Paragraph [0040], discloses classifying traffic on the basis of jitter and delay requirements. Premium traffic is characterized with medium jitter requirements and needing minimal bandwidth. Figure 4, illustrates premium traffic prioritized between real-time, high priority and best effort, lowest priority)**.**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts-Seo to

include the limitations of claim 11 which assign priority levels to queues containing different classes of service as taught in Liu for the purpose of scheduling packets in accordance with classes of service.

As per claim 12, Aznar-Kumazawa-Roberts-Seo teaches **the method of scheduling packet in wireless telecommunication system of claim 10.** Aznar-Kumazawa-Roberts-Seo is silent on **wherein the packet with only time delay limitation is scheduled by a method of EDF algorithm, that is, a method of selecting a user packet most approximating to the maximum time delay threshold and providing priority services** which is well known in the art and commonly applied in the communications field for scheduling packets.

However, Liu, in an analogous art, teaches **wherein the packet with only time delay limitation is scheduled by a method of EDF algorithm, that is, a method of selecting a user packet most approximating to the maximum time delay threshold and providing priority services** (Time delay and time delay jitter are well known in the art as service parameters for assigning class of service and it is also known that the use of the earliest deadline first algorithm is served for scheduling packets closest to the delay bound. Liu, Paragraph [0051], discloses priority scheduling of packets using the EDF algorithm for a specific traffic class).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts-Seo to include **wherein the packet with only time delay limitation is scheduled by a**

method of EDF algorithm, that is, a method of selecting a user packet most approximating to the maximum time delay threshold and providing priority services as taught in Liu for the purpose of scheduling packets in accordance with quality of service

As per claim 29, Aznar-Kumazawa-Roberts-Seo-Liu teaches **the method of scheduling packet in wireless telecommunication system of claim 11.**

Liu further teaches **wherein the packet with only time delay limitation is scheduled by a method of EDF algorithm, that is, a method of selecting a user packet most approximating to the maximum time delay threshold and providing priority services** which is well known in the art and commonly applied in the communications field for scheduling packets. (Time delay and time delay jitter are well known in the art as service parameters for assigning class of service and it is also known that the use of the earliest deadline first algorithm is served for scheduling packets closest to the delay bound. Liu, Paragraph [0051], discloses priority scheduling of packets using the EDF algorithm for a specific traffic class).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts-Seo-Liu to include the limitation **wherein the packet with only time delay limitation is scheduled by a method of EDF algorithm, that is, a method of selecting a user packet most approximating to the maximum time delay threshold and providing**

priority services as taught in Liu for the purpose of scheduling packets in accordance with quality of service

As per claim 30, Aznar-Kumazawa-Roberts-Seo-Liu teaches **the method of scheduling packet in wireless telecommunication system of claim 11.** Roberts further teaches **wherein the packet without time delay limitation is scheduled by a wireless weight fair queue scheduling method** which is well known and widely used in the communications field for adjusting the transmission rate. (Paragraph [0047], discloses that available rate (AR) traffic does not have real-time requirements. Paragraph [0052], discloses that AR traffic include a weighted factor. Paragraph [0054], discloses the use of the weighted fair queuing technique)**.**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Aznar-Kumazawa-Roberts-Seo-Liu to include the limitation **wherein the packet without time delay limitation is scheduled by a wireless weight fair queue scheduling method** as taught in Roberts for the purpose of adjusting the transmission rate to ensure quality of service.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Viero et al. (US Pub. No. 2004/0109492) discloses method of limiting signal, and transmitter. Shao et al. (US Pub. No. 2004/0170186) discloses dynamic resource control for high-speed downlink packet access wireless channels. Holtzman et

al. (US Pub. No. 2003/0039213) discloses a method and apparatus for scheduling packet data transmissions in a wireless communication system. Haumonte et al. (US Pub. No. 2003/0021245) discloses a system and method of classifying remote users according to link quality, and scheduling wireless transmission of information to the users based upon the classifications. Kawai et al. (US Pub. No. 2003/0036361) discloses a method and device for transmitting burst signal in mobile communication system, information distribution method and information distribution controller. Bertin et al. (US Patent 6,400,681) discloses a method and system for minimizing the connection set up time in high speed packet switching networks. Goss (US Patent 5,828,653) discloses a quality of service priority subclasses. Zhang et al. (US Pub. No. 2002/0054578) discloses channel and quality of service adaptation for multimedia over wireless networks. Sallberg et al. (US Patent 5,555,264) discloses methods and devices for prioritizing in handling buffers in packet networks. Taneja et al. (US Pub. No. 2004/0013089) discloses admission control and resource allocation in a communication system supporting application flows having quality of service requirements. Sun et al. (US Pub. No. 2003/0219026) discloses a method and multi-queue packet scheduling system for managing network packet traffic with minimum performance guarantees and maximum service rate guarantees. Matta et al. (US Pub No. 2003/0142651) discloses a quality of service aware handoff trigger.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA CLIFTON whose telephone number is

(571)270-7156. The examiner can normally be reached on Monday-Friday, 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/J.C./
Examiner, Art Unit 2419

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